REMARKS

Claims 1-3, 7, 10-16 and 29 are cancelled. Claim 17 is amended to incorporate the features of Claim 18. Claim 18 is cancelled.

Claims 17-19, 21, 22, 25, 26 were rejected under 35 U.S.C. 103 over Hagiwara (U.S. patent no. 5,847,427) in view of Misium (U.S. patent no. 6,261,973) and Chou (U.S. patent no. 6,426,305).

Claim 17 recites "nitriding the silicon surface of the first layer by remote plasma nitridation". Hagiwara and Chou do not teach remote plasma nitridation ("RPN").

Misium is directed to RPN of silicon dioxide layers to make the oxide "resistant to etch chemistries" (col. 3, lines 26-28). Misium is not directed to RPN of a silicon surface as recited in Claim 17. In Misium's Figs. 3B, 3C, a process is illustrated in which a nitrided layer 22 forms not only on silicon dioxide 32 but also on silicon substrate 10 and polysilicon gate 30. It appears however that the nitridation of silicon 10, 30 is a side effect and not a goal of Misium's process (Misium, col. 4, lines 19-34). Misium does not teach that any benefits are obtained from an RPN of a silicon surface.

Hagiwara teaches introducing nitrogen into polysilicon floating gate 202 by ion implantation or by exposing the polysilicon to a nitrogen containing atmosphere (col. 7, line 59 through col. 8, line 3). Misium does not teach that his incidental RPN of a silicon surface would work as intended in Hagiwara.

Moreover, Hagiwara teaches away from using the RPN in his process. Hagiwara teaches that the best process for the nitridation of the floating gate 202 is the "exposure" method (exposure of the floating gate to a nitrogen containing atmosphere) because the exposure method can be performed using the same CVD device as the subsequent step of forming "the interpoly insulation film" (col. 8, lines 4-13). Hagiwara thus teaches away from performing the nitridation using a device other than a CVD device suitable for the subsequent formation of the interpoly insulation film. Misium does not teach that his RPN can be performed using a CVD device that can also be used for Hagiwara's interpoly

insulation film. See MPEP 2145, subsection X.D.2 ("References Cannot Be Combined Where Reference Teaches Away from Their Combination").

The Examiner states that it would have been obvious to use Misium's RPN in Hagiwara "to lower the thermal budget of the process." However, Hagiwara emphasizes the advantages of his exposure method despite the high temperatures involved (800-1000°C; see col. 8, line 2). Hagiwara thus suggests that the high temperatures are acceptable for his floating gate nitridation.

Claims 19-28 depend from Claim 17.

Claims 17, 20, 28 were rejected under 35 U.S.C. 103 over Lin (U.S. patent no. 6,127,227) in view of Misium and Chou.

Lin and Chou do not teach RPN.

Lin introduces nitrogen into polysilicon 120 to reduce the polysilicon oxidation rate in order to form a better ONO layer for a flash memory cell.

As discussed above, Misium is directed to RPN of silicon dioxide, not polysilicon as in Lin. Misium does not disclose that any benefits are obtained form his incidental RPN of silicon in the process of Figs. 3B, 3C. Misium does not teach that his incidental RPN of silicon would work as intended in Lin.

Any questions regarding this case can be addressed to the undersigned at the telephone number below.

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